Access Management Programs at State Level

Paper

2A. South Dakota Program

David Rose, Dye Management Group

Paper
Slides
Other

2B. Missouri's Start-up of Their 99-2000 Access Management Program

David Plazak, Iowa State University

Paper
Slides
Other

2C. Lessons Learned from Access Management Programs in Selected States

Bill Frawley, Texas Transportation Institute

Monday-August 14, 2000 – 10:00 AM – 11:30 AM
Track 1 - Administrative

South Dakota
Department of Transportation
Office of Research

DYE MANAGEMENT GROUP, INC.

U.S. Department
of Transportation
Federal Highway
Administration

Access Management in South Dakota

Paper prepared for the
4th National Access Management Conference
Portland, Oregon
August 2000

Prepared by:

David C. Rose, Dye Management Group, Inc.
E. Randy Armour, Dye Management Group, Inc.
David Huft, South Dakota Department of Transportation
Jerry Gluck, Urbitran Associates, Inc.

DISCLAIMER

The contents of this paper reflect the views of the authors who are responsible for the facts and accuracy of the data presented herein. The contents do not necessarily reflect the official views or policies of the South Dakota Department of Transportation, the South Dakota Transportation Commission, or the Federal Highway Administration. This paper does not constitute a standard, specification, or regulation.

Correspondence

Please direct correspondence to:

David Rose
Dye Management Group, Inc.
Suite 1700, 500 108th Ave NE
Bellevue, WA 98004

Telephone (425) 637 8010
E-mail David@dyemanagement.com

ACKNOWLEDGEMENTS

The work presented in this paper was performed under the supervision of a technical panel of state and local employees, and in cooperation with the United States Department of Transportation Federal Highway Administration. The technical panel included:

Darin Bergquist ..... *Legal Counsel*
Carl Chambers..... *Right of Way*
Mike Cooper..... *City of Sioux Falls*
Gary DeJong..... *Aberdeen Area*
Jeff Gies ..... *City of Rapid City*
Mark Hoines *Federal Highway Administration*
Richard Howard ..... *SD Assn. of Counties*
David Huft..... *Research*
Joel Jundt.....*Operations Support*
Dennis Landguth .....*Rapid City Region*
Jody Larson ..... *Local Government Assistance*
Mark Leiferman .....*Roadway Design*
Roger Mack .....*SD 1st Planning District*
Craig McIntyre..... *Planning & Programs*
Ben Orsbon ..... *Planning & Programs*
Jerry Ortbahn ..... *Planning & Programs*
Clifford Reuer.. *Local Government Assistance*
Mark Rodvold *Mid-America Energy Company*
Hal Rumpca ..... *Research*
Kevin Smith ..... *City of Sioux Falls*
Yvonne Vik..*South Dakota Municipal League*

Access Management in South Dakota

■

This paper presents an overview of the results and recommendations from a review of the South Dakota Department of Transportation's (SDDOT) highway access control process. The project was initiated in March 1999, with the final draft report completed in February 2000. The results of the review are summarized, along with the next steps to be taken and project success factors.

A. Overview

The principal purpose of the review of SDDOT's highway access control process was to develop improved access policies, design guidelines, and procedures for applying them. The policies, guidelines and procedures are intended to:

- **Improve highway safety by minimizing the number, severity, and cost of accidents arising from access onto and off of South Dakota's highway system.** Nationwide, various studies have documented that good access management can significantly reduce the number of traffic accidents, including fatal injury and property damage crashes.
- **Preserve investments in South Dakota's highways and roads by maintaining the functional integrity of the system.** Access management prolongs the useful life of existing roads and maintains or increases their capacity to carry traffic. It frees scarce resources for maintenance and operation of existing roadways that would otherwise be spent on major widening or new roadway projects.
- **Provide consistency and predictability regarding access.** The project provides clearer policy direction and guidelines that will enable a consistent approach to access management.
- **Improve coordination and consistency between state and local governments regarding access policies.** Local governments' policies regarding access to city streets and county roads, subdivision review, and other development review impact access policy goals. For the state system, successful access management requires effective coordination and consistency with local government.
- **Update South Dakota's 1970's access management policies and design guidelines to provide an improved and consistent basis for managing highway access.** Dating from the 1970s, the old policies and guidelines do not adequately address South Dakota's needs for the twenty-first century.

Achievement of these goals was facilitated through the development of materials that communicate the benefits of improved access control and through consensus building for change to procedures among the state, regional, and local interests. Broad based stakeholder understanding and constituency building regarding the safety and system benefits from improved access management was an important success factor for the project.

B. Approach

The steps taken for the Review of SDDOT's Highway Access Control Process are summarized below.

- **Review of Access Regulations and Policies in South Dakota.** This step evaluated how effectively contemporary access management can be implemented under existing laws, administrative rules and procedures in South Dakota.

- **Analysis of South Dakota Access Management Issues.** This involved undertaking a series of issue identification interviews with key participants and stakeholders, including key SDDOT managers in the headquarters and the regions, representatives of local jurisdictions, and other stakeholders.

- **Evaluation of National Experience Applicable to South Dakota.** This step involved assisting South Dakota in learning from the experiences of other states. This evaluation drew on the project team's similar evaluation as part of access management work for other states. This was supplemented by conducting a scan of neighboring states and access management activities.

- **Developed Factual Information to Support Policy.** This involved developing factual information to demonstrate the safety corridor preservation and other benefits of updated access management. The approach had three elements:

  - Conclusions were drawn and evidence cited from national research into accidents, costs, capacity impacts, effects on business, and other variables.

  - South Dakota's safety data was used to generate specific estimates of the safety benefits.

  - Illustrative case studies specific to South Dakota were conducted. The case studies illustrate benefits from access management such as preserving public investment, community preservation, and benefits to property owners.

- **Conducted Regional Workshops with Key Stakeholders to Obtain Input and Build Support for Implementation.** This provided the opportunity for involving key stakeholders: elected officials, business leaders, developers, motor carriers, and others to validate and provide input on the draft access policy, design guidelines, model ordinances, and other project work products.

- **Developed Access Policy.** Input from the workshops, technical panel and the results of the previous steps provided the basis for developing recommendations for an access management policy applicable to South Dakota.

- **Developed Access Guidelines and Criteria.** This included identification of where access should be allowed or denied for various classes of roads, what should be the allowable spacing for signalized and unsignalized access connections, and where should alternative access be required.

- **Developed Tools for Local Government Including Model Ordinances.** The study recommended a process for incorporating the recommendations into the land use and development review process. This involved conducting interviews, reviewing documented procedures, and requirements to determine the effectiveness of current practices. Weaknesses with current procedures were documented and recommendations developed to strengthen them. Ordinances in South Dakota were reviewed and existing inventories of relevant ordinances used in other states were drawn upon. These were then used to prepare model ordinances applicable to South Dakota.

- **Developed Permitting Process Recommendations.** The recommendations are based on input received during group interviews involving process participants in each of SDDOT's regions and review of current documented policies, procedures, and business practices.

- **Prepared Implementation Plan.** This prepares a work breakdown and plan for implementing the recommended new access management policy and procedures. Performance measures to monitor the success of the implementation were also developed.

C. Project Outcomes

The following summarizes the major outcomes from the project.

1. Documented the Benefits of Access Management to South Dakota

It was important for the project to clearly establish and document the benefits to South Dakota of improved access management policies and guidelines. Documenting the following benefits made the business case for improved access management in South Dakota:

- **Minimizes access-related accidents.** Improved access management reduces the number, severity and cost of access-related accidents. Analysis of South Dakota's statewide accident data found that between 1995 and 1997 there were more than 5,300 accidents identified as driveway accidents. This included 13 fatalities. Driveway-access accidents cost South Dakota about $36.5 million per year.

- **Preserves investment in highways and major roads.** Improved access management prolongs the useful life of existing roads and maintains or increases their capacity to carry traffic. This frees scarce resources that would otherwise be spent on major widening or new roadway projects for maintenance and operation of existing roadways.
- **Improves access to property adjacent to highways and roads.** Improved access management provides safe and easy access to businesses adjacent to the roadway, making them more attractive and inviting to potential customers.
- **Preserves private investment.** Improved access management provides predictability for the development process and maintains accessibility to businesses.

2. Developed Updated Policy

The project recommended that SDDOT adopt the following policies for providing safe, efficient access to the highway system.

- Protect the public's investment in the highway system by preserving its functional integrity.
- Use police powers and existing statutory authority, and promote the modernization of South Dakota Codified Law to ensure the safe and efficient management of access.
- Establish and maintain an access classification system that defines the planned level of access for different highways in the state.
- Provide a consistent statewide approach to the management of access to the state highway system.
- Maintain and apply access criteria, based on best engineering practices to guide driveway location and design, to implement the access classification system.
- Coordinate with local jurisdictions to ensure that South Dakota's access policy and criteria are addressed early in decisions affecting land use.
- Provide advocacy, educational, and technical assistance to promote access management practices among local jurisdictions.
- Undertake proactive corridor preservation through coordination with local units of government on corridor management, the purchase of access rights, and other investments.
- Require traffic impact analysis for developments that impact the safety and capacity of the highway system.

3. Developed Access Classification System

The project recommended that SDDOT develop and maintain an access classification system to preserve the functional integrity of the highway system. The purpose of the classification system is to specify the planned level of access for different roadways in the state. The recommended classification system, detailed in Exhibit 1, distinguishes between urban, non-urban, and low volume routes by their level of importance or functional role.

Exhibit 1: Recommended Access Classification System

Level of Importance/Functional Role	Undivided or Divided	Area
Expressway	Undivided	Non Urban
		Urban
	Divided	Non Urban
		Urban
Principal Arterials	Undivided	Non Urban – low volume[1]
		Non Urban
		Urban
	Divided	Non Urban
		Urban
Minor Arterials	Undivided	Non Urban – low volume[1]
		Non Urban
		Urban
Collectors	Undivided	Non Urban – low volume[1]
		Non Urban
		Urban – Primarily through traffic
		Urban – Primarily local traffic

- [1] Low volume is defined as 550 or less Annual Daily Traffic.

4. Developed Access Criteria

Access location criteria were developed to preserve the functional integrity of South Dakota's highways, provide for smooth and safe traffic flow, and afford abutting property an appropriate degree of access. The recommended access criteria for signalized and unsignalized driveways and at-grade intersections are based on the following general considerations:

- Allowable access should vary by roadway classification, facility type, access type, roadway speed, and development density.
- Access spacing criteria do not have to be consistent with existing access practices.
- Allowable tolerances for deviations from the desired criteria generally should vary with the access type or functional class of the roadway involved. These tolerances are greater for collectors and minor arterials than for principal arterials.
- Traffic signal spacing criteria for both driveways and at-grade public intersections should be related to roadway speed and should govern both intersecting public streets and access driveways. They should take precedence over the unsignalized spacing criteria in situations where there is potential for future signalization.
- Ideally, locations for signalized at-grade intersections should be identified first. Unsignalized right-turn and left-turn access points should then be selected based on existing and desirable future signal locations. Right-turn in and out should be located with consideration for corner clearance and driveway spacing.
- Reasonable alternative access must be considered. However, care should be exercised to avoid merely transferring problems.
- Access for land parcels that do not conform to the spacing criteria may be necessary when no alternative reasonable access is available. The basis for these exceptions or variances should be identified.

The recommended criteria are summarized in Exhibit 2 on the following page.

Exhibit 2: South Dakota Access Location Criteria

Level of Importance/ Functional Role	Undivided or Divided	Area	Signal Spacing Bandwidth*	Signal Spacing Distance (mile)	Median Opening Spacing (mile)[1]	Minimum[2] Unsignalized Access Spacing (feet)	Denial of Direct Access When Other Available
Expressway	Undivided	Non Urban	N/A	N/A	N/A	½ mile	Y
		Urban	40-45%[4]	1/2[4]	N/A	½ mile	Y
	Divided	Non Urban	N/A	N/A	1/2 F 1/2 D	½ mile	Y
		Urban	40-45%[4]	1/2[4]	1/2 F 1/2 D	½ mile	Y
Principal Arterials	Undivided	Low volume	N/A	N/A	N/A	N/A[3]	No[3]
		Non Urban	45%	½	N/A	660	Y
		Urban	40-45%[4]	1/4 –1/2[4]	N/A	250 – 660[4]	Y
	Divided	Non Urban	45%	½	1/2 F 1/4 D	660	Y
		Urban	40-45%[4]	1/4 –1/2[4]	1/4 - 1/2 F[4] 1/8 - 1/4 D[4]	250 – 500[4]	Y
Minor Arterials	Undivided	Low volume	N/A	N/A	N/A	N/A[3]	No[3]
		Non Urban	45%	½	N/A	660	Y
		Urban	35-40%[4]	1/4 –1/2[4]	N/A	200 – 450[4]	Y
Collectors	Undivided	Low volume	N/A	N/A	N/A	N/A[3]	No[3]
		Non Urban	N/A	N/A	N/A	N/A[3]	No[3]
		Urban - Primarily through traffic	35-40%[4]	1/4 –1/2[4]	N/A	150 - 350[4]	Y[5]
		Urban - Primarily local traffic	N/A	N/A	N/A	N/A[4]	No[3]

[1] N/A = Not Applicable; F = Full Movement; D = Directional Only.
[2] Stricter Standards could apply if set by other jurisdictions.
[3] Considerations other than unsignalized access spacing should govern, e.g., sight distance.
[4] Where a range of spacing is shown, the greater distance or bandwidth would apply to posted speeds of 45 mph or higher.
[5] If so, conference among the governing authorities.

* Bandwidth measures how large a platoon of vehicles can pass through a series of signals without stopping for a red traffic light. It represents a "window of green" in which motorists travelling along a roadway will encounter a series of green lights as they proceed. For example, a bandwidth of 45 percent indicates that, if a traffic signal has a 100-second cycle length, there is a 45-second band in which a platoon of vehicles will encounter green lights as they travel along a roadway.

5. Developed Retrofit Techniques

The access location and design criteria developed for the project describe the desired outcome for access locations. A major implementation issue addressed is that in many urban areas where the abutting land is fully developed it is not possible to achieve the desired conditions. To address this problem it was recommended that retrofit techniques need to be used to the maximum extent feasible to accomplish the access policy goals; however, care was taken to recognize the context within which the access location decision takes place.

Mechanisms and tools for institutionalizing the use of retrofit techniques to reduce the number of access connections (conflict points) and reduce their adverse effects became major elements of the project. This emphasis is an important practical consideration because it results in improvements to the current undesirable situation. The following techniques for driveway consolidation/relocation, corner clearance, and left-turn entrances and exits were recommended as part of retrofit during reconstruction projects:

- Consolidate and/or relocate driveways.
- Require adjacent properties to share access.
- Coordinate driveway locations on both sides of the roadway.
- Maximize corner clearance by locating access as far from the intersection as possible (i.e. near the property line).
- Provide separate left-turn entrances and exits at major traffic generators.
- Install barrier to prevent uncontrolled access along property frontage.
- Install driveway channelizing island to discourage left-turn maneuvers.

6. Improvements to Permit Process

Review of SDDOT's permitting practices showed that procedures were not consistently applied and that there was considerable variation between SDDOT regions. Recommendations were made to improve access permitting procedures by strengthening the process for making an application, processing an application, making the permit decision, and by increasing coordination during development and subdivision review. Standardizing forms were developed to apply for and review access permits. It was also recommended that Area Engineers be given signature authority for permit approval.

7. Recommendations to Strengthen Access Management Authority

The evaluation of South Dakota's statutory authority found that:

- South Dakota statute provides a weak basis for implementing a modern access management program.
- Existing statute does enable SDDOT to designate controlled access routes.

The study recommended that South Dakota's statutes be modernized to provide SDDOT with the authority to establish standards and procedures that ensure safe and efficient access to the highway system on the entire system, not just the controlled-access facilities. In addition, the study recommended SDDOT use existing authority to designate controlled-access facilities. Existing authority can be used to implement the access classification on controlled-access facilities. Highways can be designated as controlled-access facilities with access managed based on the adoption of the access guidelines recommended by the project.

8. Created Tools to Assist Local Government

Successful access management policies and criteria will be implemented through coordination between SDDOT and local units of government. This includes joint planning for protecting critical corridors, adoption of development review practices that consider access criteria, and support for enacting ordinances and other actions favorable to SDDOT's access policies and guidelines. Strengthening the partnership among SDDOT, counties and cities is key to implementing access policies in South Dakota.

As part of the project, city and county level model ordinances were drafted that support access management in the following areas:

- **Access Permitting.** Proper access location and design is paramount for preserving the functional integrity of city or county streets, providing for smooth and safe flow, and affording abutting properties an appropriate degree of access. The draft model ordinances produced by the project include ordinances for unsignalized access (driveways and intersections), signal spacing, corner clearance, sight distance, and nonconforming access features.
- **Land Development.** The interdependence of land development and access controls is another important dimension of regulating access. Subdivision regulations, lot-split requirements, and development review provide an opportunity to assure proper access and street layout in relation to existing or planned roadways.
- **Major Traffic Generators.** The recommended policy developed for the project is that developments that generate 100 or more peak hours in plus out trips are considered to be major traffic generators. Major traffic generator ordinances may have limited applicability for some cities and counties in South Dakota. However, a model ordinance code was developed for those situations where it does apply.

- **Access management plans.** Access management plans are intended to facilitate coordination of access between public roads and surrounding developments. These plans delineate current and future access points on the highway, as well as lay out a means for achieving the plan, including the elimination of nonconforming access.

D. Implementation

South Dakota has an implementation plan for institutionalizing its new access management policies, guidelines, and procedures. Work is underway and progress is being made.

1. Implementation Plan

Careful implementation planning provided good results. A plan was prepared that defined implementation projects with sufficient work task detail to estimate, at a high-level, resource needs and implementation timelines. The major components of the implementation plan are:

- **Adopt Recommended Access Policy and Establish Implementation Responsibilities.** This work element involved SDDOT management adopting the access policy project recommendations. These would be adopted by SDDOT as draft policy recommendations that are then subject to public review and comment as part of implementation.

- **Adopt Policy, Statewide Access Classification, and Administrative Rules.** This work element involves undertaking a public planning process through which the draft access policy, the proposed access classification system, and administrative rules for their implementation are subject to public and stakeholder input. This requires applying the recommended classification criteria to establish a proposed classification for the state highway system.

- **Incorporate Access Design Criteria into Roadway Design Manual.** This work element involves incorporating the access design recommendations into the roadway design manual. This will ensure that project design decisions are based on the standards required of permit applications.

- **Strengthen Statutory Authority.** Statutory change is required to strengthen the authority for access management. New legislation was recommended to modernize the current statutes to provide authority for SDDOT, counties and cities to manage the provision of safe, reasonable access to the highway system. This implementation task was successfully accomplished.

- **Prepare Access Permit Procedures Manual.** The prior work elements change the policies, criteria, and authority governing the review and administration of access permits. This work element will use the recommended procedures and changes to the access permit application process to develop a manual and

guidance for SDDOT employees and permit applicants. This will take, as its starting point, the recommendations from the access policy project.

- **Provide Education, Training, and Tools to Local Government.** This implementation element involves using the communications information produced through the project to make the case for access management. This includes developing and implementing a program for technical assistance to local officials, and city and county employees regarding the implementation elements described above.

- **Prepare Access Plans for Selected High Priority Segments and Identify Access Management-Related Improvements Eligible for Project Funding.** This work element will focus effort on the problem areas and will secure real benefits. The program will focus on corridors that the state, counties, and cities view as the highest priority and where the jurisdictions can work jointly on corridor preservation/management. This implementation element will enable SDDOT regions to develop "access management projects" eligible for project funding and that will compete with construction projects for funding.

2. Implementation Management and Communications.

Central to implementation is the recognition that there will be considerable change in the work performed across SDDOT's functions and regions. Successful implementation will require a large number of employees being educated about SDDOT's access management objectives, the new access management procedures, and their application. Therefore, change management and cross-functional oversight and communication is built into the implementation approach.

3. Performance Measurement

In recognition that "what gets measured gets done", performance measures were developed for implementation. The purpose of the performance measures is to provide data indicating the extent to which SDDOT's access management objectives are being met. Performance measures were evaluated for short-term application in South Dakota based on considerations that focus on what is measurable, reportable, and reasonable (e.g. effort and cost required). The recommended measures are included in Exhibit 3.

Exhibit 3: Recommended Performance Measures

Performance Measures	Objectives						
	Safe transportation system	**Efficient traffic operations**	**Preservation of investment in the highway infrastructure**	**Increased understanding of access objectives and local government capacity**	**Customer-service oriented process**	**Consistent and predictable process**	**Efficient and effective business procedures**
Number and type of exceptions to the adopted access criteria.	✓	✓	✓				
Number of driveways consolidated as part of retrofit activity.	✓	✓	✓				
Local jurisdictions with ordinances that support access policy objectives.	✓	✓	✓				
Dollars spent annually on retrofit projects.	✓	✓	✓				
Road user benefits (dollar value) through reduced delay.		✓					
Average number/percent of permit requests processed within established turnaround time.					✓		
Customer service rating for permit process.					✓	✓	
Number of individuals participating in training and other on-going activities.				✓			
Miles of state highway system with access plans.						✓	✓

4. Implementation Status

The following outlines progress made on SDDOT's access management project since the final review report was presented in February 2000.

- SDDOT has taken a proposal to the state legislature to grant rule-making authority to SDDOT for access location criteria.
- The state legislature granted SDDOT rule-making authority for access management in the spring of 2000.
- SDDOT is in the process of developing the new rules for access management, based on the recommendations of this project. There will be extensive public consultation involved with developing the rules.
- SDDOT is filling a new position to manage the access management implementation.

E. Success Factors

1. Organizational Readiness and Executive Support

SDDOT executives and line managers across the affected functional areas had been involved in the initial scoping and issue identification that led to the project. They provided support throughout the process and the leadership necessary to act in a timely manner on the project recommendations.

2. Partnering and Organizational Support

SDDOT, local jurisdictions, and the consultants for the Review of SDDOT's Highway Access Control Plan partnered well to build support for implementation. This went a long way toward the successful project outcome, combined with the fact that SDDOT was organizationally aligned and supportive of developing new access management policies, guidelines, and procedures.

3. Stakeholder Buy-in

In order to incorporate input from the public and SDDOT region staff, four workshops were held around the state in November 1999. Separate meetings were held for SDDOT staff and the public, although many staff members also attended the public meetings.

The public meetings included city and county superintendents, planners, commissioners and engineers, as well as public works staff, property owners and local politicians. The meetings were well attended and productive. In general, most

stakeholders were in favor of modernizing the state's access management policies, guidelines, and procedures. Participants were pleased with the opportunity to provide input and this helped to ensure stakeholder buy-in.

4. Use of Case Studies to Demonstrate Benefits of Access Management

The use of South Dakota case studies to illustrate the benefits of access management ensured that the benefits were tangible to stakeholders. People had personal knowledge of the case studies and could relate to the benefits. At the workshops, many more problem areas and/or examples of good practice were discussed.

5. Development of Tools for Local Governments

Tools were developed to assist local jurisdictions and SDDOT to improve the coordination between the development review process and land use planning and access management in the following areas:

- Access permitting.
- Land development.
- Major traffic generators.
- Access management plans.

These tools were presented at the workshops. Local jurisdictions were appreciative of these tools and other educational materials developed for the project. Many people agreed that having these tools and educational materials is important for an effective implementation of access management.

6. Implementation Based on Education and Communication

Education and communication form an integral part of the project implementation plan, explaining the concepts, procedures, and actions required to address access management. This is particularly important given that many jurisdictions do not have staff with a background in or knowledge of access management. Tools and resources that counties and cities can use, including the model ordinances developed through the project, will be disseminated as part of the communication plan.

"Missouri: A Comprehensive Process for Developing A Statewide Access Management Program"

Norman Beeman, Missouri Department of Transportation District 4, 5117 East 31st Street, Kansas City, MO 64128

Mac Finley, Missouri Department of Transportation Support Center, Traffic Division, 105 West Capitol, Jefferson City, MO 65102

David J. Plazak, Center for Transportation Research and Education, Iowa State University, 2901 South Loop Drive, Suite 3100, Ames, IA 50010

ABSTRACT

The Missouri Department of Transportation (MODOT) is responsible for one of the largest state-jurisdiction road systems in the United States. MODOT controls over 20,000 miles of rural major and minor collector routes that are usually managed by counties in mid-western states. This gives MODOT an opportunity to develop and implement more comprehensive highway transportation programs than many states, particularly in areas outside of municipalities.

Missouri has recently decided to embark on an access management program and has focused on utilizing access management mainly to meet safety, traffic operations, and economic development goals. Access management involves carefully designing and controlling the level of access that land development has to arterial and collector roadways via private driveways. When access is poorly managed, the result is higher crash rates, reduced traffic capacity, reduced travel speeds, increased delays, loss of roadway capacity, and a host of other ills. Poorly access-managed roads are a sub-optimal use of taxpayers' investment in roadways.

The Missouri Access Management program development process involves a number of key steps. These include:

- Stakeholder identification and participation. These key groups include both internal MODOT staff and management plus external groups that have not traditionally been involved in access management planning, such as developers.
- Participant education on access management principles and impacts.
- Development of specific statewide goals for access management. These goals are being tied closely into MODOT's enterprise strategic plan, especially the sections on safety and economic development.
- Development of an easy to understand (and communicate) access management roadway classification system based on MODOT's existing functional classification system.
- Development of a detailed set of access management standards and guidelines in the form of a guidebook. (Some of these guidelines are being developed to suggest best practices to local transportation and land use planning organizations.)
- Development of administrative processes (such as the driveway permitting process).
- Identification of current and likely future access management problem corridors.
- Identification of promising "pilot" project corridors where access management principles could be applied. These corridors could be used as examples for the rest of the state and evaluated in terms of their effectiveness and impacts.
- Access management awareness and training for stakeholder groups identified through a marketing plan.

This paper will provide an overview of the start-up and development of the Missouri access management program, including such issues as system classification, standards, and the participation of economic and land developers as well as local government officials in the design of the program. It will also briefly cover a process for the identification of problem corridors using management information system data and geographic information systems (GIS) technology. This paper will be useful to other states and state DOTs wanting to address access management in a comprehensive fashion.

INTRODUCTION

(NOTE: The Missouri Comprehensive Access Management Planning Process is an ongoing project. All materials presented in this paper are subject to change.)

In all states, the roadway system plays a dual role. It provides service to through traffic, while also providing access to adjacent properties, residences and businesses. When these two roles are not properly balanced and managed, safety problems and operational issues result. These negatively impact both the traveling public and the adjacent landowners. Access management involves striking the proper balance between the dual roles roadways must play. This is done through the application of access management standards, which involve such features as spacing between driveways, driveway geometric design, internal circulation design for land developments, and installation of medians.

An extensive amount of access management research and programmatic activity is currently taking place in the Midwestern states. For example, Kansas is pursuing an aggressive corridor management program, while Minnesota and South Dakota are developing comprehensive access management programs. Iowa has commissioned several research projects designed to explore the relationships between access management and safety, traffic operations, and business vitality. Missouri is the latest state in the region to begin working on an access management strategy.

The Missouri Department of Transportation (MODOT) is responsible for managing a far more extensive system of roads than its neighbors—over 30,000 miles in all. Unlike most other states in the Midwest, MODOT manages rural roads that are functionally classified as collectors and some routes that would be classified as local service routes in other states. Missouri's "peer states" were identified based on the nature and extent of their road systems. These peer states are identified in Table 1 and were contacted to obtain their access management standards, classification systems, and administrative policies. States that are considered to be leaders in access management based on their presentations at the three past National Access Management Conferences were contacted for similar information.

Table 1: Missouri's Peer States in Terms of State Highway System Extent

"PEER STATES" FOR MISSOURI ACCESS MANAGEMENT I							
	RURAL HIGHWAYS, STATE ADMINISTRATION						
STATE	MILES	LANE-MILES	DVMT 2/	AADT/LANE 3/	PERCENT OF STATEWIDE TOTAL RURAL 4/		
					MILES	LANE-MILES	DVMT 2/
North Carolina	68,715	142,253	87,982	618	91.2	91.8	79.0
Texas	68,298	153,219	159,616	1,042	31.9	34.5	89.7
Virginia	48,662	103,798	73,580	709	95.5	96.4	86.2
South Carolina	34,609	72,454	62,004	856	63.9	64.8	87.8
Pennsylvania	32,388	68,703	85,804	1,249	37.9	39.1	72.2
West Virginia	30,850	63,083	30,849	489	96.1	96.1	84.3
Missouri	30,649	64,321	66,267	1,030	28.8	29.8	85.6
Kentucky	25,031	53,242	52,453	985	40.4	41.9	76.2
Ohio	15,275	33,312	73,245	2,199	18.7	19.8	66.7
Arkansas	14,999	33,722	43,816	1,299	17.8	19.8	86.2
Georgia 1/	14,843	32,457	73,407	2,262	17.4	18.6	68.4
Louisiana	14,643	32,599	47,635	1,461	31.3	33.6	81.2

Source: Federal Highway Administration (FHWA), Highway Statistics.

Notes for Table 1:

1/ Travel is estimated by FHWA; other data are for 1996.

2/ DVMT means Daily Vehicle-Miles of Travel.

3/ AADT means Annual Average Daily Traffic. AADT/Lane is a system-wide average.

4/ Statewide totals for mileage, lane-miles, and travel are found in tables HM-20, HM-60 and VM-2.

Missouri's State Constitution gives the Highways and Transportation Commission the authority to manage highway access:

> "The highways and transportation commission shall have authority over all state transportation programs and facilities as provided by law, including but not limited to, bridges, highways, aviation, railroads, mass transportation, ports, and waterborne commerce, and shall have authority to limit access to, from and across state highways where the public interest and safety may require."(1)

Missouri has historically had a tax on motor fuel that is well below the average for the states. This has led to a situation where Missouri's roadways are replaced on a longer cycle that those in other states. This is important for access management for a number or reasons, not the least of which is that Missouri's highways often have more curvature and greater profile change than other, nearby states. Combined with the rough topography of the state, this means that sight distance is often a major concern in locating driveways in both rural and urban areas. Missouri has not practiced access management in a comprehensive manner until now. Instead, it has largely approved or disapproved individual driveway permits along its routes on the basis of desirable or minimum sight distance standards. Several types of variances to the sight distance standards have been issued at the District level in situations where only a minimum stopping sight distance standard could be met.

PROJECT OBJECTIVES

Missouri is taking a comprehensive approach to access management. Access management is being integrated into MODOT's overall enterprise strategic plan. In particular, access management will be one of the most important strategies in the agency strategic plan for achieving improved highway safety. The main objectives of the Missouri access management comprehensive plan are to:

- Develop a comprehensive approach to access management in Missouri.
- Develop all necessary classifications, standards, guidelines and administrative processes.
- Identify current and likely future corridors with access management problems.
- Provide access management training for the MODOT staff and other stakeholders.

STAKEHOLDER ANALYSIS

Key stakeholders for access management in Missouri were identified prior to the initial meeting for the project. Important groups to involve in the develop in access management planning and outreach for Missouri were: Missouri DOT District staff, Missouri DOT Central Office/Support Center staff from a variety of disciplines (including traffic engineering, right of way, planning, and highway design), land developers, economic developers, and city government officials. A key feature of the planning process involves the identification and involvement of local land use planning officials and private developers. These groups can either help or hinder the application of access management standards through their decisions.

PLANNING PROCESS

Separate Oversight and Technical Committees were formed to guide the planning process. The oversight committee was established to:

- Provide high-level guidance for the study (e.g. setting goals)
- Direct the Technical Committee to address issues
- Discuss policy issues
- Consider different viewpoints, including business vitality, economic development, and land development, in developing the access management plan.

The Oversight Committee includes managers from various Missouri DOT divisions and district offices, plus experienced land developers and economic developers, as well as city elected officials.

By contrast, the Technical Committee was to:

- Develop technical standards and guidelines for access management
- Report these back to the Oversight Committee.

The Technical Committee is made up of Missouri DOT staff from several divisions and district offices plus local transportation planning and engineering professionals who are involved in access management.

ACCESS MANAGEMENT GOALS

The following access management goals were set during an initial meeting of the Oversight Committee. They are shown in order of importance from highest to lowest and are:

- Increased Safety. Fewer crashes and lower crash rates are the main measures of success for this goal.
- Improved Traffic Operations. The expectation here is that access management can help reduce congestion, shorten travel times, improve mobility, and help protect the environment through salutary effects on energy use, air pollution, and land use.
- Protection of the Taxpayers' Investment. Access management is hoped to be able to preserve past and present investments in expensive roadway assets and to defer the need for future investments.
- Better operating conditions for non-auto modes. Pedestrians, bicyclists and public transportation users as well as motorists are expected to be beneficiaries of access management.

The MODOT access management project has already been closely integrated with the Department's overall strategic plan. One of the main goals for the enterprise strategic transportation plan is safety. A strategy under safety in the enterprise plan is now to:

> "Integrate access management at the local, regional, and statewide levels."

The Division Engineers and the Traffic Division of MODOT have joint responsibility for this strategic element of the MODOT enterprise strategic plan.

CLASSIFICATION SYSTEM

Classification systems are a key part of the access management process. They allow access management standards to properly fit the present and future functional roles of highways. Classification systems are also useful for helping to explain access management concepts to the public and land and business owners.

Several other states' access management classification systems were reviewed for applicability to Missouri's highway system, current functional classification system, and jurisdictional arrangements. The Technical Committee adopted a system partially modeled on Colorado's access management classification system. The main reason for adopting this system is that it is relatively simple to understand and explain; yet it reflects the continuum of roles that roadways must play. The proposed classification system is shown in Table 2 below.

Table 2: Proposed Missouri Access Management Classification System

Proposed Missouri State Highway Access Management Classification System

(Ten Classification Levels—Largely Based on Current MoDOT Functional Classification System)

	Urban	Rural
Interstate/Freeway	U1	R1
Principal Arterial (A)	U2	R2
Principal Arterial (B)	U3	R3
Minor Arterial	U4	R4
Collector	U5	R5

A Principal Arterial (A) is a key, non-freeway or non-Interstate intercity or inter-regional route that is intended to support long-distance travel. An example is US 63, which runs north to south across Missouri between Iowa and Arkansas.

U indicates Urban: the highway is within Census current urbanized or urban area or is forecast to be in an urban area within 20 years. Future urban highways will be planned as such in terms of access management.

R indicates Rural: the highway is not currently urban and is not in a 20 year forecast urban area.

DETERMINATION OF FEATURES TO BE MANAGED

A determination of features to be included in the access management standards for Missouri was made jointly by the Oversight Committee and the Technical Committee. The features for which standards are being developed are:

- Distance between interchanges on Interstates and other freeways.
- Clearance of functional areas of interchanges.
- Distance between at-grade interchanges.
- Transition areas on the same route between freeway and expressway standards.
- Distance between traffic signals.
- Driveway spacing and density.
- Corner clearance and clearance of functional areas of intersections.
- Sight distance for driveways.
- Driveway geometrics and surfacing.
- Median openings.
- Guidelines for using two-way left-turn lanes, three-lane cross-sections, and raised medians.
- Dedicated right and left turn lanes.
- Frontage and backage road spacing from mainline routes.
- Parking on facilities.
- Accommodations of non-auto modes in conjunction with managing access.
- Connection depth (throat length) standards for major traffic generators.

These standards are currently being developed by the technical Committee for presentation to the Oversight Committee. In addition, the Technical Committee is developing a set of recommendations for local governments that have to do with matters that they control that impact access management. This set of guidelines includes such things as minimum lot frontages, encouraging joint and cross access, and avoidance of development practices such as “flag lots”.

PROBLEM AND PILOT PROJECT IDENTIFICATION USING GIS

An additional task of the planning process has involved the identification of problem highway corridors using geographic information system (GIS) technology and existing Missouri DOT safety management data. Right-turn and left-turn crash density and crash rates have been mapped statewide in Missouri using ArcView 3.1. Several of the maps produced are shown below in Figures 1 and 2. These maps are being used to identify places where access management retrofit projects would be most beneficial and also to identify places where past projects have had a positive impact.

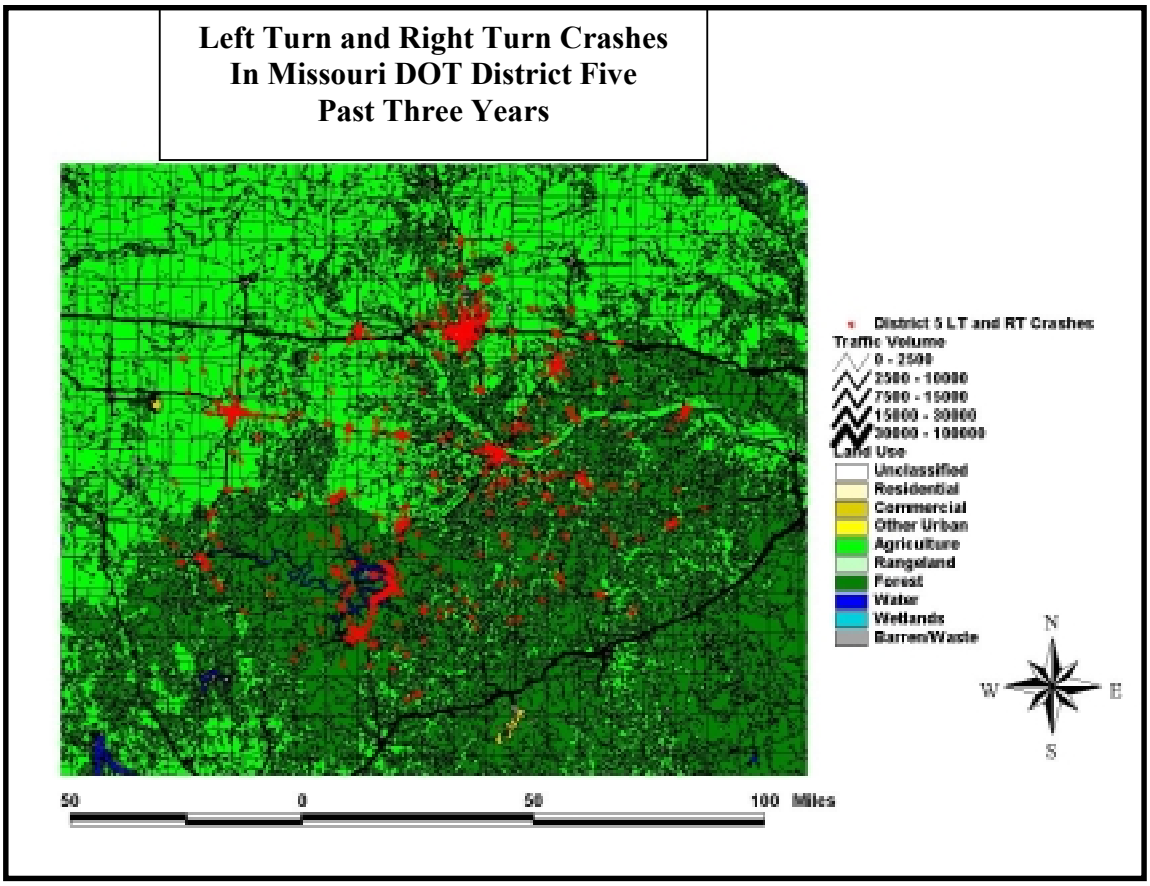

Figure 1: Left and Right-Turn GIS Crash Map for MoDOT District 5

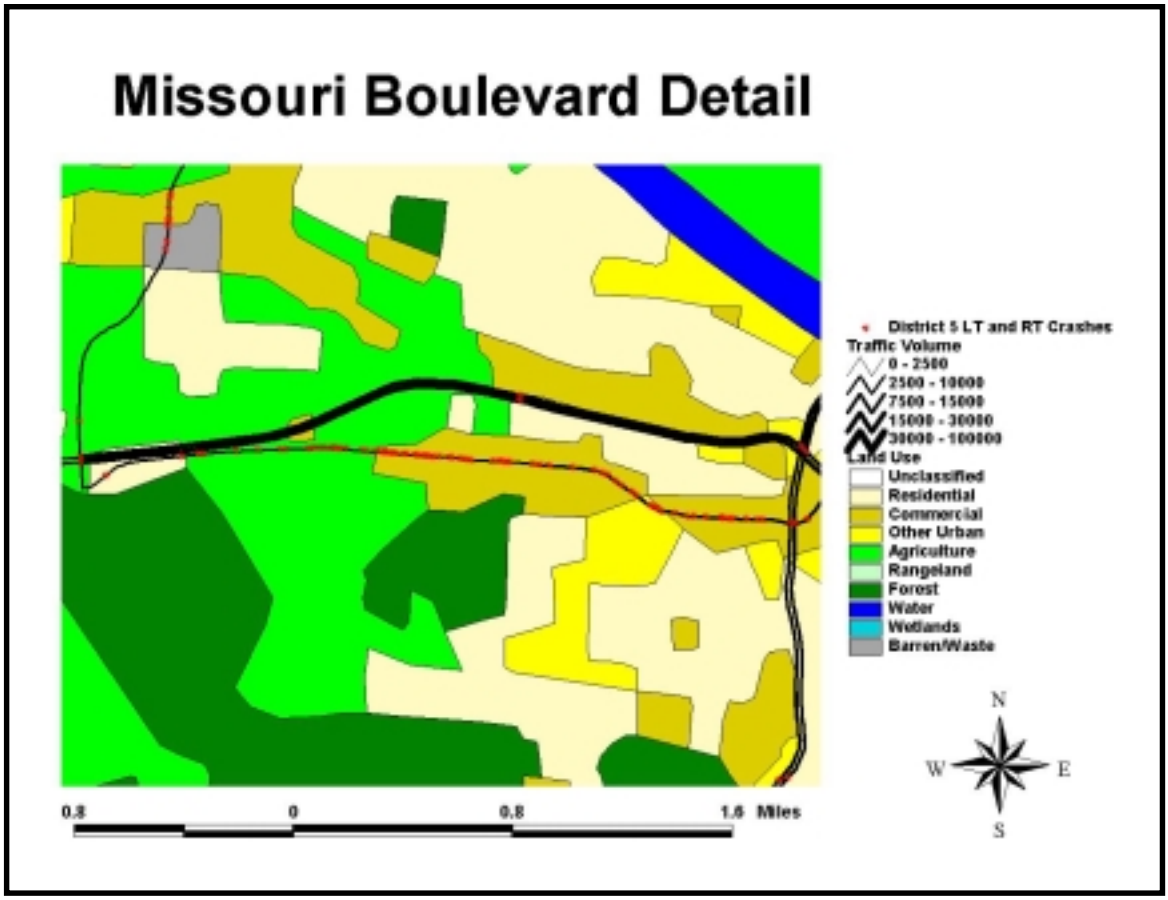

Figure 2: Detailed GIS Crash Map for Part of Jefferson City, Missouri.

ADMINISTRATIVE PROCESS

Once standards are in place, a next step will involve laying out an administrative process for applying them. A preliminary set of goals has been discussed with the Oversight Committee. These include:

- Making safe and operationally beneficial access decisions.
- Protecting the public investment in roadways.
- Providing a timely and predictable decision making process for landowners and developers.
- Encouraging uniformity of application of standards statewide, especially on Interstates, Other Freeways, and Strategic Principal Arterial routes.
- Making decisions based on clear and logical access standards.
- Allowing flexibility and engineering judgement where warranted.
- Keeping the number of variances at a reasonable level
- Providing for an efficient appeals process.
- Setting good precedents for future access decisions.

Administrative process guidelines such as driveway permit fees, centralized versus decentralized decision-making, and time-lines for making permit and variance decisions will be established as a part of this phase of the project.

The concept of a hierarchy of features to be managed through the variance process has been adapted from a paper on variances presented at the second National Access Management Conference in 1996. (2) Some features, such as sight distance requirements, should be given the most scrutiny in reviewing potential variances since they are critical to maintaining a safe road system.

EDUCATION, OUTREACH AND MARKETING

The Missouri access management project began and will end with education. The first completed task involved educating the Oversight Committee about the benefits and impacts of access management. National and regional information on access management and its benefits was presented; in particular information from neighboring Iowa about the safety and business vitality impacts of access management was highlighted.

One of the last phases of the project will involve the development and use of educational materials designed to teach access management concepts and raise awareness. The educational materials will be targeted both internally within MODOT and externally to key stakeholder groups such as city officials, local land use planners, local transportation professionals, and developers.

RESULTS AND CONCLUSION

The Missouri DOT's comprehensive access management planning process is ongoing. Considerable work remains to be completed. The success of Missouri's access management plan will depend on three main factors. These include the ability to coordinate implementation within MODOT, the ability of MODOT to coordinate and cooperate with local governments on access management, and the ability of MODOT to persuade the development community of the value and importance of access management.

REFERENCES

1. Missouri Constitution, Article IV, Section 29, Highways and Transportation.
2. Eisdorfer, Arthur, and Robert Siley, "Variances-An Important Part of Access Management Decisions", Conference Proceedings, Second National Access Management Conference, Vail Colorado, August 11-14, 1996, published by the Federal Highway Administration, US Department of Transportation, pages 289-297.

LESSONS LEARNED:
ACCESS MANAGEMENT PROGRAMS IN SELECTED STATES

by

William E. Frawley
Texas Transportation Institute
110 N. Davis Dr., Suite 101
Arlington, TX 76013
Ph: 817.462.0533
Fax: 817.461.1239
e-mail: w-frawley@tamu.edu

and

William L. Eisele
Texas Transportation Institute
Texas A&M University System
3135 TAMUS
College Station, TX 77843-3135
Ph: 979.845.8550
Fax: 979.845.6008
e-mail: bill-eisele@tamu.edu

ABSTRACT

The authors of this paper are currently investigating the development of access management programs in various states. This investigation is part of a research project to determine the legislative and regulatory requirements for the Texas Department of Transportation (TxDOT) to develop and adopt a comprehensive access management program. Researchers have interviewed officials from state DOTs in Colorado, Montana, Oregon, New Jersey, Michigan and Wisconsin regarding their access management programs and other related practices, with particular interest in their development and implementation.

This paper provides an overview of current access management programs in various states, explaining "lessons learned" during the development and implementation of the programs. Examples of the lessons learned include hiring a large enough staff dedicated to the program, creating a separate bureau/department/division for access management, and including a process to handle waivers. Specific recommendations from state DOT officials are also presented. This paper and presentation will be useful to states, provinces and cities that are interested in developing or amending an access management program.

INTRODUCTION

Background

As traffic volumes and congestion have increased in recent years, transportation officials have sought ways to protect the public's investments in arterial streets and freeways. The primary purpose of these facilities is the movement of vehicles. This purpose is in contrast to that of local streets, which are built to provide direct access to businesses and residences. In order for arterial streets and freeways to operate most efficiently, access to and from those roads must be limited to specific points. This strategy reduces the potential conflict points involving vehicles crossing lanes of traffic and those make turns into and out of driveways. The solutions to these problems are found in comprehensive access management programs. A comprehensive access management program includes tools such as driveway spacing, median treatments, auxiliary turning lanes, and grade-separated interchanges, as well as the policies for implementing them.

Several state departments of transportation (DOTs) around the country have established comprehensive access management programs. Certain states, such as Colorado, Florida, New Jersey and Oregon, are well known for the success of their access management programs. Those states have already completed the processes of creating, adopting and implementing access management programs. Other states have begun to develop access management programs and are either proceeding with this work or have interrupted it. In all of these cases, there are valuable lessons to be learned by transportation agencies that are considering developing comprehensive access management plans. The "lessons learned" presented in this paper represent a variety of experiences and perspectives of transportation planners and engineers from around the country.

RESEARCH METHODOLOGY

There have been few attempts in the past to collectively document various states' access management and related programs. In addition to conducting literature searches, research team members interviewed professional contacts who do this work to gain additional knowledge of access management programs. These contacts provided at least basic background information about programs and the people involved with them.

Using information from the literature review and the original contacts, researchers began to investigate programs, including those planned and under development, around the country. The research team considered each of the programs and identified several to develop into case studies. Case studies were developed by three means - personal interviews with state DOT staffs, telephone interviews, and literature review. Five states' programs were targeted for in-depth investigations, involving personal interviews with state DOT staffs at their offices.

RECOMMENDATIONS FROM OTHER STATES

Program Development / Administrative Support

Document Production

A common suggestion by DOT officials from several states is to create a work plan in the beginning. A work plan will help keep all parties involved in developing the access management program focused on the desired end results. It is quite common for DOTs to hire consultants to write laws, administrative codes and implementation policies as elements of their access management programs. One strong recommendation related to this practice is to also hire a good editor, with quality

technical expertise. The editor will insure consistency in wording throughout individual documents, as well as consistency among the various documents. Another related comment was to be careful about word choice. For instance, assigning words an access management meaning if they already have another connotation can lead to confusion by all parties involved. "Access" has been a difficult word for some agencies to technically define.

Implementation Timing

New Jersey DOT staff shared that the transportation agency, including staff and administration, should not underestimate the amount of time that will be required to implement legislation. All parties need to understand this issue and allow time between the adoption of the legislation and the required implementation date. This interim time allows staff to properly develop the enacting regulations and procedures, as well as all of the detailed aspects, such as application forms and review checklists. The agency must also allow adequate time for staff hiring and training.

Administrative Support

If a transportation agency, such as a state DOT, is going to successfully develop and implement an access management program, there must be administrative support. The agency administration must be patient and understanding of the time and resources required to establish an access management program. The bottom line is that the administration should at least allow, if not encourage, the program development.

If the agency administration is not in support of an access management program from the outset, there are at least two methods staff can utilize to promote the idea. Most importantly, the access

management program should follow a consistent theme, while addressing all relevant perspective, such as safety, design, right-of-way, etc. A consistent theme will provide a solid foundation for making decisions about the program.

Another important method is to build a case for access management based on success stories in other locations and local information. The Oregon experience showed success in gaining agency support for their program through background provided by their scientific documentation which provided supporting evidence that access management is necessary and beneficial. In order to prepare such documentation, the authors obtained numbers on accident rates and attributable costs (including property damage, injuries and fatalities) relevant to access management. Additional support can be obtained by analyzing accidents related to intersections (including driveways) and by breaking out statistics between urban and rural roads. Such data should be tracked for several years. If possible, it is helpful to compare accident histories of two similar roads built several decades ago - one with some type of median barrier and one without.

Another related method that can be used to promote access management is to address is the cost of additional relief routes. Staff may develop comparisons between the costs of building relief routes (also referred to as bypasses in some states) to the costs of retrofitting existing streets with access management techniques. The staff may also compare the expenses of new roads to be built with and without access management techniques, as well as the costs of relief routes if access management techniques are not included. This information is important when discussing the value of implementing access management techniques, in order to preserve the viability of existing or new

roads.

MARKETING ACCESS MANAGEMENT

In addition to possibly needing to sell DOT administration on the idea of access management, it is necessary to market the benefits to other stakeholders as well. Marketing access management was a consistent theme among all of the DOTs interviewed in the research project. A long-time coordinator of one access management program, Philip Demosthenes of Colorado DOT, stated that after many years he is still selling, still problem solving, and still acting like it's a new program that is always under pressure. This interviewee added that, in the early years, the best marketing tool was a set of a few hundred aerial photos, and a few ground photos showing the "good, bad and ugly." Emphasizing the "bad" - this is the problem and access management is the solution - can be very influential when presenting access management to stakeholders. At the same time, it is important to keep in mind and show what good access management looks like - as if to say, "see, that doesn't look bad, it's not scary." The person marketing access management should explain that it involves better decision making and better unitization of current and proven engineering and design. Collecting and presenting accident-related statistics will also aid in marketing access management.

There are many opportunities to market access management to groups through the use of speakers. However, there are also individuals and groups that may be more effectively targeted with printed materials. It is also constructive to develop a user-friendly document that most people can understand. Such a document needs to clearly explain the intent and contents of the access management program. Producing and distributing the document(s) will make the program

development go much more smoothly than it would proceed otherwise. It will help give the stakeholders the best opportunity to know exactly what is being proposed.

PROGRAM OPERATION/MAINTENANCE

An access management program must have a full time specialist committed to it from the very beginning. This specialist does necessarily need to have a great amount of access management experience, but should at least have good technical and people skills and be willing to learn about access management. This type of controversial, political, legal and complex program will not run on its own. It will be one of the few regulatory programs within a DOT. One interviewee stated this idea very plainly by saying, "the program must have a specialist - unless you simply want a mediocre program with mediocre results." The program needs a coordinator who can serve as the focal point for questions and concerns from everyone involved, as well as to ensure that the program develops and grows in a positive direction.

A lesson learned from the New Jersey experience is that once the access management program is up and running, it is vital to make sure there is cross-communication between project-oriented staff and permit-oriented staff, if they are separate. The coordinator of one well-established program reported that such cross-communication had been lost in their agency. This cross-communication insures consistent application of the same set of regulations. It also allows the permit staff to inform applicants about proposed projects that may affect their property.

POTENTIAL BARRIERS AND OBSTACLES

While there are a myriad of barriers and obstacles that can and do present themselves when developing and implementing an access management program, several specific ones were mentioned by interviewees in the research project. Most, if not all, of these barriers and obstacles stem from two issues - money and people.

Money

Many officials' experiences have shown that there will likely never be enough money to do everything in the best possible way and there will always be competition for available funds. Persons involved in developing an access management program should realize the need for funding from the outset. Keeping this need in mind will help stress the importance of proving the value that access management provides to the infrastructure and the motoring public. It is also important to keep in mind that political priorities internal to each agency will have great impacts on how funds are spent.

People

Staff

While the issue of money is relatively simple - the consensus says that you need as much as you can get - there are several barriers and obstacles related to people. One "people" issue is similar to the general "money" issue - you need as many people as you can get. In addition to the dedicated access management program coordinator, there needs to be enough people to handle all of the work involved. People are needed for a variety of tasks, including processing permits and requests, reviewing sites and plans, performing legal work and research, and working with the public. All

persons interviewed emphasized the need to have an adequate number of people on staff.

Politics/Bureaucracy

Developing and implementing an access management program can be a politically sensitive issue, since it potentially affects many stakeholders. Several DOT officials interviewed stated the need to be aware of this fact, so attempts can be made to not upset stakeholders, whether they are internal or external to the transportation agency. Colorado DOT staff explained that this goal can be accomplished by using appropriate, quality educational materials that explain all aspects of access management, including the benefits and costs. Program developers need to be aware of the specific concerns and lack of knowledge that stakeholders will likely have and be ready to address as many issues as possible. Specially targeted efforts may be required in order to thoroughly explain information to some people that may be more easily understood by others.

In order to obtain and/or maintain internal administrative support, proper agency protocol must be respected. In some cases, it may be necessary to go through chains of command to talk to necessary people and make progress. This may occur in the implementation as well as the development of the program. Some examples of where protocol issues may be involved include obtaining authority for the access management coordinator to make decisions and request staff time from other divisions, departments or agencies. More than one interviewee stressed that it is more work than one person can accomplish.

LEGAL ISSUES

There are numerous potential legal issues that may arise when developing and implementing an access management program. Decisions have to be made regarding legislation that authorizes and enacts the program. Other issues correspond to property rights, takings and access rights. This section highlights a few of the concerns that were discussed in the interviews with state DOT officials.

Regulations

New Jersey DOT staff shared that writing clear, accurate and complete regulations in proper regulatory language and voice was suggested as a method to enjoy success related to legal issues. Testing all the ways the rules will be used, and running all the various scenarios to test the text and the standards are ways to ensure that this goal is met. One interviewee stated that the weaker the rule is, the faster it will be ignored.

Case Law

Case law is based on decisions in previous legal cases. While those decisions may not be overturned, it is important to keep in mind that case law interprets legislative law. The legislature can change case law by enacting new legislation. Therefore, each state needs to understand its case law in order to write new law and regulations. A new access code/regulation will help change future decisions in case law. Knowing other states' case law helps understand the complexity.

It is important to have one attorney from the Attorney General's office responsible for access management work. That way he or she will be able to learn a great amount about the engineering

and planning issues that affect legal cases. Discussions with the Attorney General's office, in order to determine who has authority if the State is going to give cities the right to review access management plans and related requests, are a vital part of the overall program. Clear rules related to these processes must be established and followed.

WAIVERS

Every access management program must be flexible enough to allow for situations that cannot be predicted and/or are out of the ordinary. It is not possible to create a specific rule or regulation for every potential scenario that may materialize. Therefore, the program must allow for waivers "on both sides of the counter," for the public and for the transportation agency.

One concern that needs to be addressed is consistency among various waiver requests and responses. A suggestion to help provide some consistency it to establish a database in which all waiver requests and answers are entered. This will provide various application reviewers a means of referencing similar previous requests.

While it is necessary to provide flexibility through waivers, one interviewee emphasized the importance of keeping waivers to a minimum by stating that the Code is a tree and every waiver is a whack at the tree with an axe.

Another suggestion regarding the waiver process is to not include drawings, since they are difficult to amend. It was further stated that with such figures you not only bind the property owner, but you

also bind the DOT.

"IF I COULD DO IT AGAIN"

One of the questions asked during the interviews was, "if you had it all to do over again, what would you do differently?" Some of these responses repeat points made previously, but are important enough to include in this section as well, since they were reiterated by the interviewees. Since these points were made more than once, they may be some of the most important issues related to developing an access management program.

- Have more staff, a better developed program and more money to support projects to improve access locations with proven accident records.
- Spend more time on education up-front.
- Start by trying to define what the law means (considering that we started with a law); a lot of issues have come up related to intent of the law.
- Broaden our stakeholders list.

- We started with urban, suburban and rural standards, but, you have to be able to establish where such areas begin and end; it is difficult to paint a suburban line on the ground.
- I would develop the law and the program at the same time; that way you involve all of the constituency groups and develop laws and regulations more smoothly. It would be beneficial to at least go a good way down the path with the two together.
- If the law will say regulations have to be adopted within a certain amount of time, make

sure it is a reasonable amount of time.

- You won't get it right the first time - "perfection is the enemy of the good" - you will spend too much time trying to perfect it and won't ever finish.
- Do not ignore highway projects - make sure there is wording on how to implement the program other than through permits.
- We would have actual legislation, instead of relying on the [State Transportation] Commission for everything.
- To avoid as much political pressure as possible, there needs to be an actual access management bureau or section within the state DOT. Such a group would bring together staff with experience and expertise.

CONCLUSION

This paper has presented the majority of suggestions made by state DOT officials in states where access management programs are being successfully operated and in states where programs are being developed. The authors hope that these "lessons learned" will be useful to officials in cities, counties, states and provinces where access management programs are being developed or refined. It is important to note that not every suggestion presented is applicable for every agency, but this collection of "lessons learned" provides a menu from which to choose.

FOR FURTHER INFORMATION

Additional and more specific information on these and other issues may be found in documents produced by various research institutions and state DOTs. Some examples are:

- New Jersey DOT Design Manual - Metric (provides examples of jughandle designs)
- New Jersey State Highway Access Management Code
- Montana DOT Access Management Plan
- Colorado State Highway Access Code
- Access Management CD Library (see also www.accessmanagement.gov)
- Center for Urban Transportation Research (University of South Florida) web site (www.cutr.eng.usf.edu)

In addition to these resources, the authors of this paper will be publishing a research report with much more detailed information. It is likely to be available from the Texas Transportation Institute in the Spring of 2001.